

**WHAT IS CLAIMED IS:**

1. A pure water tank for a fuel cell system, comprising:  
a pure water zone configured to hold pure water and to have an upper space being not filled with the pure water; and  
5 an antifreeze zone being secured on the outer side of the pure water zone and configured to hold antifreeze,  
the antifreeze having a freezing point lower than a lowest temperature of a service temperature range of the pure water tank, the density thereof increasing as the temperature thereof decreases within the service temperature  
10 range.
2. The pure water tank of claim 1, wherein  
a width of the antifreeze zone between a side face of the antifreeze zone on the pure water zone side and an outer side face of the antifreeze zone  
15 is set according to a height of the antifreeze zone so that the pure water in the pure water zone may gradually freeze from the bottom portion thereof.
3. The pure water tank of claim 2, wherein:  
the width of the antifreeze zone is set to be equal to or larger than a  
20 predetermined width; and  
the predetermined width increases as the height of the antifreeze zone increases and a variation in the predetermined width is proportional to a logarithm of the height of the antifreeze zone.
- 25 4. The pure water tank of claim 3, wherein  
a minimum value of the width of the antifreeze zone is set to be equal

to or greater than the predetermined width.

5. The pure water tank of claim 4, wherein  
the width of the antifreeze zone is set to gradually increase from the  
5 top toward the bottom portion of the antifreeze zone.